

What is claimed is:

1. In a mobile communication system, a method of setting a reverse activity bit (RAB), the method comprising:

5 measuring a rise over thermal noise-measured (ROTm) representing a load degree of a reverse link;

comparing the ROTm with a setup reference value (ROTm\_th);

setting the RAB to lower data rate of a terminal, when the ROTm is greater than the ROTm\_th;

10 enabling a base station to receive and monitor a variation state of the ROTm, when the ROTm is less than the ROTm\_th; and

setting the RAB to control the data rate according to the variation state of the ROTm.

15 2. The method of claim 1, further comprising:

dividing the ROTm into at least two states according to the variation state of the ROTm; and

setting the RAB to lower the data rate according to one of the at least two states.

20 3. The method of claim 2, further comprising:

setting the RAB according to a transition degree of the state of the ROTm.

4. The method of claim 3, further comprising:  
resetting the RAB, when the state of the ROTm is changed  
after the RAB is set, based on formula:

RAB set time = RABSetTimeBystate + RABSetTimeByStateTrans,

5 wherein RABSetTimeBystate is a RAB set time corresponding to  
the state of the ROTm, and RABSetTimeByStateTrans is a RAB set  
time corresponding to the transition degree of the state of the  
ROTm.

10 5. The method of claim 4, further comprising:  
updating the RAB set time when the ROTm varies.

6. The method of claim 5, further comprising:  
setting the RAB according to a ROTc value calculated based  
15 on the load degree of the reverse link and the RAB set time.

7. The method of claim 6, further comprising:  
setting the RAB to lower the data rate regardless of the  
ROTc value, when the RAB set time is greater than a first  
20 threshold.

8. The method of claim 7, further comprising:

comparing the ROTc to a ROTc\_th threshold for the load degree of the reverse link, when the RAB set time is equal to the first threshold;

setting the RAB to lower the data rate, when the ROTc is  
5 greater than the ROTc\_th threshold; and

setting the RAB to raise the data rate, when the ROTc is smaller than the ROTc\_th threshold.

9. The method of claim 1, wherein the step of setting the  
10 RAB to control the data rate comprises:

setting the RAB to lower transmission data rate of the terminal for a predetermined slot length, when an increment rate of the ROTm calculated according to a variation rate depending on time the ROTm exceeds a previously set upward reference value  
15 (ROT\_Up); and

maintaining the RAB to raise the transmission data rate, when the increment ratio of the variation rate of the ROTm fails to exceed the upward reference value (ROT\_Up).

20 10. The method of claim 9, further comprising:

maintaining the RAB to lower the data rate in case of the ROTm exceeding the reference value (ROTm\_th) until the ROTm drops below the upward reference value (ROT\_Up).

11. The method of claim 9, further comprising:

generating the RAB to raise the data rate prior to a currently set reverse activity bit, when the measured ROTm fails to exceed the reference value (ROTm\_th) and a decrement rate of the variation rate of the ROTm downwardly exceeds a previously set downward reference value (ROT\_Down).

12. The method of claim 9, further comprising:

shortening the predetermined slot length as the ROTm gets lower; and

increasing the predetermined slot length as the ROTm gets closer to the reference value (ROTm\_th).

13. The method of claim 12, further comprising:

calculating the predetermined slot length based on following equation:

$$\text{predetermined slot length} = a / \text{ROT}(\text{ROTm\_th}[\text{dB}] - \text{ROT\_Measured}[\text{dB}]),$$

where the ROT\_measured is a measured ROT value (ROTm), and 'a' is a proportional constant related to the predetermined slot length.

14. The method of claim 1, wherein the mobile communication system is a 1xEV-DO system.

15. In a mobile communication system, a base station system having a function of setting reverse activity bit (RAB) to control a load amount in a reverse link, comprising:

5 a ROTm measurement unit measuring a ROTm indicating a load degree of the reverse link;

a RAB set time calculation unit dividing the ROTm into at least two states of the ROTm to set up a RAB set time separately according to the states of the ROTm;

10 a first comparison unit comparing the ROTm to a reference value (ROTm\_th); and

a RAB generation unit generating a RAB to lower data rate, when the ROTm is greater than the reference value (ROTm\_th) according to a comparison result of the first comparison unit,  
15 the RAB generation unit generating the RAB to lower the data rate for the RAB set time when the RAB set time calculated in the RAB set time calculation unit is greater than a first threshold, and maintaining the RAB to raise the data rate, when the ROTm is smaller than the reference value (ROTm\_th).

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16. The base station system of claim 15, wherein the RAB set time calculation unit calculates the RAB set time based on the states of the ROTm and a transition degree of the states of the ROTm.

17. The base station system of claim 15, further comprising:

a ROTc calculation unit calculating a ROTc based on the load  
5 degree of the reverse link; and

a second comparison unit comparing the calculated ROTc to a specific threshold (ROTc\_th),

wherein the RAB generation unit sets the RAB based on the ROTm and the ROTc.

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18. The base station system of claim 16, wherein after setting up the RAB set time corresponding to the state of the ROTm and the RAB set time corresponding to the transition degree of the state of the ROTm, the RAB set time calculation unit  
15 calculates the RAB set time, when the state of the ROTm is changed, based on following equation:

$$\text{RAB set time} = \text{RABSetTimeBystate} + \text{RABSetTimeByStateTrans},$$

where RABSetTimeBystate is the RAB set time corresponding to the state of the ROTm, and RABSetTimeByStateTrans is the RAB set  
20 time corresponding to the transition degree of the state of the ROTm.

19. The base station system of claim 15, wherein the RAB set time is updated when a state transition of the ROTm takes place.

5        20. The base station system of claim 17, wherein the RAB generation unit sets the RAB to lower the data rate regardless of the ROTc, when the RAB set time is greater than the first threshold, wherein the RAB generation unit compares the ROTc to ROTc\_th as a threshold of the load degree of the reverse link  
10 when the RAB set time is equal to the first threshold and then sets the RAB to lower the data rate when the ROTc is greater than the ROTc\_th, and wherein the RAB generation unit sets the RAB to raise the data rate when the ROTc is smaller greater than the ROTc\_th.

15        21. The base station system of claim 20, wherein the RAB set time is decreased when the RAB is set to lower the data rate when the RAB set time is greater than the first threshold.

20        22. The base station system of claim 15, wherein the mobile communication system is a 1xEV-DO system.

23. In a mobile communication system, a base station system having a function of setting reverse activity bit (RAB) to control a load amount in a reverse link, comprising:

a ROT measurement unit measuring ROT<sub>m</sub> as a value of  
5 indicating a load degree of the reverse link;

a ROT variation rate calculation unit calculating a variation rate of the ROT<sub>m</sub>;

a first comparison unit comparing the ROT<sub>m</sub> measured in the ROT measurement unit to a reference value (ROT<sub>m\_th</sub>) previously  
10 set to a level lower than a maximum ROT a base station can receive;

a second comparison unit comparing an increment rate of the variation rate of the ROT calculated from the ROT variation rate calculation unit to a previously set upward reference value  
15 (ROT\_Up); and

a third comparison unit comparing a decrement rate of the variation rate of the ROT calculated from the ROT variation rate calculation unit to a previously set downward reference value (ROT\_Down).

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24. The mobile communication system of claim 23, further comprising:

a RAB generation unit generating RAB to lower transmission data rate to terminals in a cell or sector when the ROT<sub>m</sub> exceeds



the reference value (ROTm\_th), the RAB generation unit generating the RAB to lower data rate for a predetermined slot length when the ROTm fails to exceed the reference value and the increment rate of the variation rate of the ROT calculated from the ROT variation rate calculation unit exceeds the ROT\_Up, the RAB generation unit generating the RAB to raise the data rate when the ROTm fails to exceed the reference value and the increment rate of the variation rate of the ROT calculated from the ROT variation rate calculation unit fails to exceed the ROT\_Up.

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25. The base station system of claim 24, wherein the RAB lowers the data rate, which is generated when the ROTm exceeds the reference value (ROTm\_th), is maintained each slot until the ROTm goes below the reference value (ROTm\_th).

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26. The base station system of claim 24, wherein when the measured ROT fails to exceed the reference value (ROTm\_th) and the decrement rate of the variation rate of the ROT downwardly exceeds a previously set downward reference value (ROT\_Down), the RAB is generated to raise the data rate prior to a currently set RAB.

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27. The base station system of claim 24, wherein the predetermined slot length is set shorter as the ROTm gets lower.

28. The base station of claim 27, wherein the predetermined slot length is set longer as the ROTm gets closer to the reference value (ROTm\_th).

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29. The base station system of claim 28, wherein the predetermined slot length is calculated based on following equation:

$$\text{slot length} = a / \text{ROT}(\text{ROTm\_th}[\text{dB}] - \text{ROT\_Measured}[\text{dB}]),$$

10        where Slot\_Length is the predetermined slot length, the ROT\_measured is a measured ROT value (ROTm), and 'a' is a proportional constant related to slot length.

30. The base station system of claim 24, wherein the mobile  
15 communication system is a 1xEV-DO system.